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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,545	12/29/2005	Akiko Yuasa	MAT-8799US	3993

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EXAMINER	
ZACHARIA, RAMSEY E	
ART UNIT	**PAPER NUMBER**
1794	
MAIL DATE	**DELIVERY MODE**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,545	YUASA ET AL.	
	Examiner	Art Unit	
	Ramsey Zacharia	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,10-16 and 18-28* is/are rejected.

7)☒ Claim(s) *8,9,17 and 29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/29/05;5/29/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 28 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection since the disclosure as originally filed does not cite the use of "silicon nitrate" as an infrared ray reflection material. It is noted that silicon ***nitride*** is cited as an inorganic material that maybe used as an infrared ray reflection material on page 6 of the instant specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 10, 11, and 25-27 are rejected under 35 U.S.C. 102(a) as being anticipated by JP 2003-271044.

JP 2003-271044 teach a vacuum insulation material comprising a core material covered by a laminated film (paragraph 0017). A reflective sheet, such as aluminum, is applied to the surface to reflect radiant heat (paragraph 0025).

5. Claims 1, 2, 6, 19, 21, and 25-27 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2003-074786.

JP 2003-074786 teach a vacuum insulation material comprising a core and a laminate surrounding the core (see Figures 1-7).). The core may comprise dry silica powder and carbon black (paragraph 0016). The laminate comprises a surface protection layer (such as PET, PP or nylon) a gas barrier layer, and a heat seal layer (paragraph 0156). The insulation may be used in the door and body of a refrigerator, freezer, or vending machine (Figure 8 and paragraph 0146). The surface protection layer (e.g. PET which has a melting point of at least 200 °C) reads on a radiation heat transfer suppressor since no degree of heat transfer suppression is recited in the claims and the surface protection layer would be expected to suppress at least some heat since PET, PP, and nylon all absorb at least some IR radiation. As insulation in the door or body of a refrigerator, a space will necessarily exist between the insulation and the light bulb (i.e. heat generation source) in the refrigerator.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-074786 in view of Urata et al. (US 2003/0134078).

JP 2003-074786 teaches all the limitations of claim 7, as outlined above, except for the use of a fluorocarbon resin as the protective layer (since the protective layer reads on the radiation heat transfer suppressor for the reasons put forth above).

Urata et al. is directed to a vacuum heat insulator that may be used in a refrigerator (paragraph 0001). The insulator comprises a core and a gas barrier laminate having a protective layer (paragraph 0221). The protective layer may be formed of a polyester, polyamide (i.e. nylon), or a fluoroplastic (paragraph 0221).

Urata et al. show that polyesters, polyamides, and fluoroplastics are known in the art as functionally equivalent materials for forming the protective layer of a vacuum heat insulator used in refrigeration. Therefore, because these materials were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a fluoroplastic for the polyester or nylon taught by JP 2003-074786.

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-074786 in view of Himeshima et al. (US 5,693,399)

JP 2003-074786 teaches all the limitations of claim 20, as outlined above, except for the addition of an inorganic fiber to the composition of the core. However, silica is made use of for the core of JP 2003-074786.

Himeshima et al. is directed to a vacuum heat insulator for use in a refrigerator (column 1, lines 5-6). The core of the insulator may be composed of a silica powder or inorganic fibers (such as glass or ceramic fibers) singly or in combination (column 4, lines 44-53).

It would have been obvious to one skilled in the art to add an inorganic fiber to the composition of the core of JP 2003-074786 because Himeshima et al. disclose that both are known material for the core of vacuum heat insulators and it has been held that it is *prima facie* obvious to combine two compositions (e.g. silica and carbon powders of JP 2003-074786 and the glass or ceramic fibers of Himeshima et al.) each of which is taught by the prior art to be useful for the same purpose (e.g. core of vacuum heat insulator), in order to form a third composition to be used for the very same purpose. See MPEP 2144.06.

9. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-271044 in view of Ackerman et al. (US 2003/0215640).

JP 2003-271044 teaches all the limitations of claims 3-5, as outlined above, except for the use of metal or metal oxide powders as the sheet to reflect radiant heat.

Ackerman et al. is directed to insulation comprising a thermally reflective top layer (abstract). The thermally reflective top layer comprises infrared reflecting agents, such as titania (i.e. a metal oxide) or metallic particles, in a binder (paragraphs 0021-0022).

It would have been obvious to use the thermally reflective top layer of Ackerman et al. as the radiant heat reflecting layer of JP 2003-271044 since it has been held that the selection of a known material (e.g. the thermally reflective material of Ackerman et al.) based on its suitability for its intended use (e.g. top layer of thermal insulation) supported a *prima facie* obviousness determination. See MPEP 2144.07.

10. Claims 12-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-271044 in view of Sasaki et al. (US 4,076,889).

JP 2003-271044 teaches all the limitations of claims 12-16 and 18, as outlined above, except for the use of nickel or a metalized film as the reflective sheet used to reflect radiant heat.

Sasaki et al. is directed to a heat-insulating material designed to insulate surfaces from direct exposure to radiant heat (column 1, lines 5-9). The material is a laminate comprising a fluoroolefin polymer base having a metal layer, such as aluminum or nickel, deposited thereon (column 3, lines 47-63).

It would have been obvious to use the radiant heat reflective material of Sasaki et al. as the radiant heat reflecting layer of JP 2003-271044 since it has been held that the selection of a known material (e.g. the radiant heat reflective laminate of Sasaki et al.) based on its suitability for its intended use (e.g. protecting surfaces from radiant heat) supported a *prima facie* obviousness determination. See MPEP 2144.07.

11. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-271044 in view of Kim et al. (US 2003/0062190).

JP 2003-271044 teaches all the limitations of claims 23 and 24, as outlined above, except for the use of a fluorocarbon resin as the heat seal material.

Kim et al. disclose that perfluoropolymers, such as those based on chlorotrifluoroethylene, may be used as heat-scalable adhesives (paragraphs 0048-0049).

It would have been obvious to use the perfluoropolymer adhesives of Kim et al. as the heat seal material of JP 2003-271044 since it has been held that the selection of a known material (e.g. the perfluoropolymer adhesives of Kim et al.) based on its suitability for its intended use (e.g. heat sealing) supported a *prima facie* obviousness determination. See MPEP 2144.07.

Allowable Subject Matter

12. Claim 8, 9, 17, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter.

The invention of claims 8, 9, and 29 is directed to a vacuum heat insulator as recited in claim 1 wherein the radiation heat transfer suppressor comprises alternately laminated first and second inorganic material films wherein the first and second inorganic materials have different reflectances. The invention of claim 17 is directed to a vacuum heat insulator as recited in claim 1 wherein the radiation heat transfer suppressor comprises a polyphenylene sulfide substrate with a metal film provided on the substrate.

JP 2003-074786 and JP 2003-271044 represent the closest prior art. However, neither of these references teach or fairly suggest a vacuum heat insulator as claimed having either a

metalized polyphenylene sulfide film or alternately laminated first and second inorganic materials having different reflectances as a radiation heat transfer suppressor.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye, can be reached at (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Ramsey Zacharia/

Primary Examiner, Art Unit 1794